Project Risk Assessment

Evaluating Impact of a Risk on Major Project Objectives

Project Objective	Very Low .05	Low .1	Moderate .2	High .4	Very High .8	Comments
Cost	Insignificant cost increase	<3% cost increase	3-5% cost increase	5-10% cost increase	>10% cost increase	
Schedule	Insignificant schedule slippage	Schedule slippage <5%	Overall project slippage 5-10%	Overall project slippage 10-20%	Overall project schedule slips>20%	20% slippage ~ 8 months
Scope	Scope decrease barely noticeable	Minor areas of scope affected	Major areas of scope affected	Project scope reduction unacceptable for physics objectives	Scope of project effectively useless for physics objectives	
Technical	Technical degradation of project barely noticeable	Technical performance of final product minimally affected	Technical performance of final product moderately affected	Degradation of technical performance of final product unacceptable for physics objectives	Technical performance of project end item effectively useless for physics objectives	

Convolution of risk associated with line item and impact to objectives of overall project

Project Risk Assessment

Risk Matrix:
Product of probability and impact on project objectives
green, red, orange = low, moderate, high risk

Probability	Risk Score = Probability x Impact				
0.9	0.05	0.09	0.18	0.36	0.72
0.7	0.04	0.07	0.14	0.28	0.56
0.5	0.03	0.05	0.10	0.20	0.40
0.3	0.02	0.03	0.06	0.12	0.24
0.1	0.01	0.01	0.02	0.04	0.08
	0.05	0.10	0.20	0.40	0.80
	Impact on Objectives				

- Select high risk elements, discuss means of mitigation
- Make sure contingency is consistent with overall risk score
  - Can override cost contingency guidance given in PMP, for example

Project Risk Assessment

Risk evaluated at summary task level
Precise WBS level may vary

in MS Project

Example: Produce pre-production analog flex cables, WBS 1.1.2.5.2

Project Objective	Risk impact (range: 0-1)	Probability (range: 0-1)	Product (risk score)	Overall risk assessment	Comments
Schedule	0.4 (high)	0.6	0.24	High	Write mitigation procedure (consider slack)
Scope	0.4 (high)	0.3	0.12	Moderate	No action required
Technical	0.8 (very high)	0.5	0.40	High	Write mitigation procedure
Cost	0.4 (high)	0.5	0.20	High	Described below

- Cost example: cost of analog flex cable = $232k (+ $106k cont – 46%)
- Total cost of silicon project: $8,740k
- 5-10% impact (cost of analog cables > ~ $440K) on total silicon cost conceivable, adjust contingency accordingly

Project Contingency Guidelines
(from draft Project Execution Plan)

7.1.2 Contingency Estimation

The contingency is estimated by the WBS level 3 Sub-project Managers at the lowest available level. It is based on detailed estimates of designs where available, and on the experience of the Sub-project Managers and the engineering staff directly involved with the subsystem where a conceptual design exists. Guidelines for the estimation of the contingency have been provided, but may be overridden by the Sub-project Managers in exceptional cases. The general guidelines for the contingency estimation are:

- 0% on items that have been completed.
- about 10-15% on items that have been ordered, but not delivered (this accommodates change orders, delivery costs, etc.)
- about 25-30% on items that can be readily estimated based on quotes for a detailed design
- about 50% on items for which a detailed conceptual design exists, but which may vary due to scope changes such as channel count
- about 70-100% on items for which there does not yet exist a detailed conceptual design, but which is an item required for the Project